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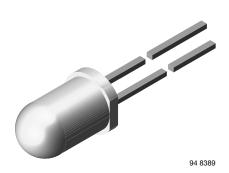
TSPF6200

HALOGEN FREE

GREEN

Vishay Semiconductors

High Power Infrared Emitting Diode, 890 nm, GaAlAs / Double Hetero



FEATURES

Package type: leaded
Package form: T-1¾

• Dimensions (in mm): Ø 5

Peak wavelength: λ_p = 890 nm

High reliability

· High radiant power

· High radiant intensity

• Angle of half intensity: $\varphi = \pm 22^{\circ}$

· Low forward voltage

• Suitable for high pulse current operation

· Good spectral matching with Si photodetectors

 Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>



TSPF6200 is an infrared, 890 nm emitting diode in GaAlAs / double hetero (DH) technology with high radiant power, high speed, and with typical receiving characteristics, TSPF6200 is molded in a blue gray tinted plastic package.

APPLICATIONS

· Metering systems

PRODUCT SUMMARY				
COMPONENT	I _e (mW/sr)	φ (°)	$\lambda_{\mathbf{p}}$ (nm)	t _r (ns)
TSPF6200	55	± 22	890	50

Note

• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
TSPF6200	Bulk	MOQ: 3000 pcs, 3000 pcs/bulk	T-1¾	

Note

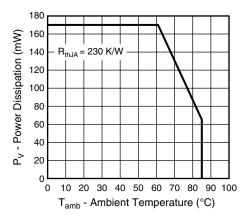
· MOQ: minimum order quantity

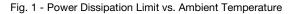
ABSOLUTE MAXIMUM RATINS (T _{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_{R}	5	V
Forward current		I _F	100	mA
Peak forward current	$t_p/T = 0.5, t_p = 100 \mu s$	I _{FM}	200	mA
Surge forward current	t _p = 100 μs	I _{FSM}	1.5	Α
Power dissipation		P _V	170	mW
Junction temperature		Tj	100	°C
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +100	°C
Soldering temperature	t ≤ 5 s, 2 mm from case	T _{sd}	260	°C
Thermal resistance junction to ambient	J-STD-051, leads 7 mm soldered on PCB	R_{thJA}	230	K/W



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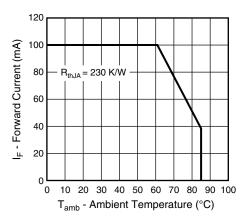


Fig. 2 - Forward Current Limit vs. Ambient Temperature

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	V_{F}	-	1.42	1.7	V
	$I_F = 1 \text{ A}, t_p = 100 \ \mu\text{s}$	V _F	-	3.0	-	V
Temperature coefficient of V _F	I _F = 100 mA	TK_{VF}	-	-1.7	-	mV/K
Reverse current	V _R = 5 V	I _R	-		100	nA
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _j	-	160	-	pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	l _e	30	55	90	mW/sr
	I _F = 1 A, t _p = 100 μs	l _e	-	520	-	mW/sr
Short circuit current	$E_e = 1 \text{ mW/cm}^2, \lambda = 870 \text{ nm}$	I _k	-	10	-	μΑ
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2, \lambda = 870 \text{ nm}$	V ₀	-	1.0	-	V
Reverse light current	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 870 \text{ nm}$, $V_R = 5 \text{ V}$	I _{ra}	-	10	-	μΑ
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	φ _e	-	40	-	mW
Temperature coefficient of φ _e	I _F = 100 mA	TKφ _e	-	-0.35	-	%/K
Angle of half intensity		φ	-	± 22	-	٥
Peak wavelength	I _F = 100 mA	λ_{p}	870	890	910	nm
Spectral bandwidth	I _F = 100 mA	Δλ	-	40	-	nm
Temperature coefficient of λ_p	I _F = 100 mA	TKλ _p	-	0.25	-	nm/K
Rise time	I _F = 100 mA	t _r	-	50	-	ns
Fall time	I _F = 100 mA	t _f	-	50	-	ns

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BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

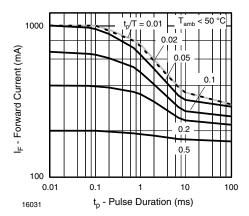


Fig. 3 - Pulse Forward Current vs. Pulse Duration

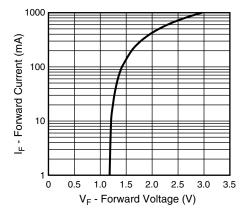


Fig. 4 - Forward Current vs. Forward Voltage

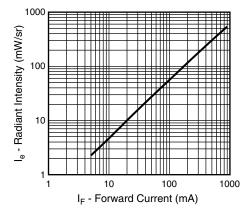


Fig. 5 - Radiant Intensity vs. Forward Current

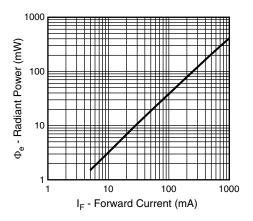


Fig. 6 - Radiant Power vs. Forward Current

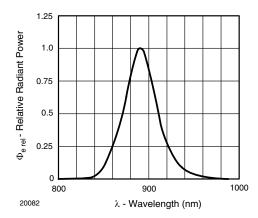


Fig. 7 - Relative Radiant Intensity / Power vs. Wavelength

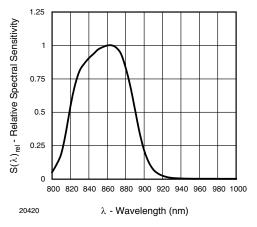


Fig. 8 - Relative Spectral Sensitivity vs. Wavelength

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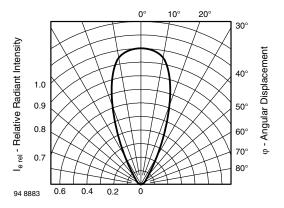
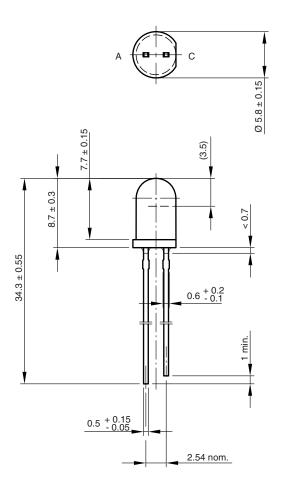
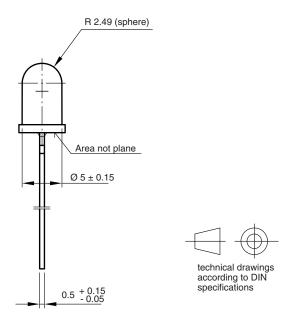


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters





Drawing-No.: 6.544-5259.06-4

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